

Streeks Bio-Inputs

Regulatory reform for a sustainable agricultural future

Bio-inputs offer an eco-friendly alternative to synthetic fertilisers and pesticides. By **Albert Coetzee**



Albert Coetzee

Bio-inputs are emerging as a transformative solution amid mounting pressure on global agriculture to reduce its environmental footprint, while maintaining productivity. Derived from natural sources such as beneficial microbes, plant extracts, and organic compounds, bio-inputs offer an eco-friendly alternative to synthetic fertilisers and pesticides.

The biofertiliser industry is experiencing significant growth, with the global market valued at approximately \$2.53 billion in 2024 and projected to reach \$6.34 billion by 2032. It's growing at a Compound Annual Growth Rate (CAGR) of 12.21% and this surge is driven by increasing consumer demand for more sustainable agricultural practices. Similarly, the biological pesticides market, valued at \$8.73 billion in 2024, is expanding rapidly and expected to grow to \$28.61 billion by 2032, with a CAGR of 16.0%.

Despite these promising trends, the adoption of the usage of bio-inputs faces several barriers. At a recent webinar by the Southern Hemisphere Fruit Alliance, several experts in this field unpacked prevailing challenges.

Observations regarding the regulatory framework

- The absence of a uniform definition of bio-inputs at official and academic level, which has resulted in insufficient regulatory focus and leads to the inclusion of bio-inputs within regulatory frameworks designed for agrochemicals.
- According to a recent survey by the Food and Agriculture Organization in Mexico, 45% of biological products being developed fulfil two to three functions, whilst chemicals traditionally focus on efficacy function.
- Biological inputs behave and perform differently to chemical inputs, which highlights the need for distinct regulations.
- The absence of an aligned and uniform definition of bio-inputs hinders alignment between trade partners.
- Dedicated regulatory frameworks will help streamline the commercial registration process. Without such frameworks, the registration requirements rely on traditional agrochemical standards, resulting in high costs for equipping production plants and laboratories capable of generating the necessary data. And if regulatory frameworks change, these assets may become obsolete.
- Technical evaluation teams often lack the required experience to evaluate and streamline procedures, and regulatory agencies may struggle to effectively assess these applications.
- Key obstacles include:
 - limited access to information
 - the "adoption valley" challenge, where biological products require longer periods for evaluation and application and delayed timelines in the registration of biological products.

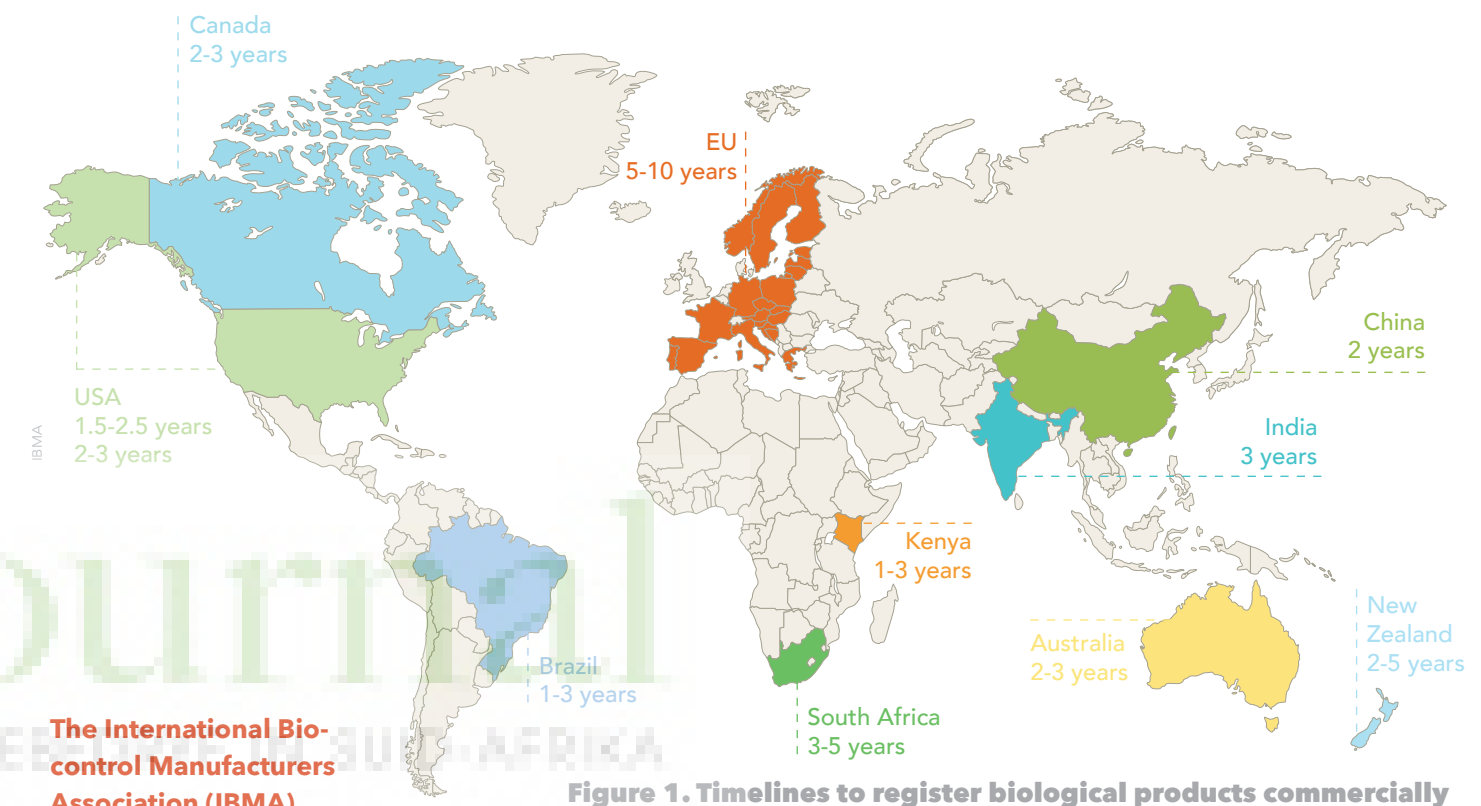


Figure 1. Timelines to register biological products commercially

The International Bio-control Manufacturers Association (IBMA) published a paper comparing the regulatory frameworks for natural substances.

- The difference can be seen, and points to Brazil having a blueprint for how to mitigate relevant challenges.
- Between 2021 and 2024, Brazil managed to register a substantial number of products within a short time, and growth in the biological industry indicates producer willingness to use these products.
- The reason for the successful uptake of bio-inputs lies in clear and dedicated legislation in the form of Decree 4074 (2002), Joint Normative Instruction 3 from 2006, and more recently, Joint Ordinance 1 from 2023, and Law 15.070 from 2024.

These laws are simple and state that legislation to register bio-inputs will be developed independently without using the legislation for chemical pesticides as a basis. It provides for a customised regulatory data package for bio-inputs with clear registration instructions and allows for these products to be prioritised if requested.

Bio-inputs are emerging as a transformative solution amid mounting pressure on global agriculture to reduce its environmental footprint.

For a regulatory framework to be effective, it must be dedicated and robust enough to encourage the production of high-quality products within a reasonable timeframe. Failing that, there is a significant risk of reputational damage. If products with inconsistent quality and unproven effectiveness enter the market, producers are likely to avoid adopting these products, along with other bio-inputs.

The experience of Brazil serves as a powerful case study, demonstrating that clear, dedicated legislation tailored to biological products can unlock rapid growth and adoption. By establishing independent regulatory pathways, Brazil has not only accelerated product registration, they've also

fostered industry confidence and innovation.

For other regions to replicate this success, it is essential to move beyond chemical-centric regulations and to embrace frameworks that reflect the distinct nature of bio-inputs. Doing so will ensure the development of high-quality, effective products and safeguard the reputation of this promising sector.

Ultimately, a harmonised and forward-thinking regulatory approach is key to enabling bio-inputs to play a transformative role in the future of agriculture.

